CONTENTS

Volume 36, Issues 1–8

International Journal of
MATHEMATICAL EDUCATION in SCIENCE and TECHNOLOGY

Issue No. 1, JANUARY

A case study of the transfer of mathematics skills by university students S. BRITTON, P. B. NEW, M. D. SHARMA and D. YARDLEY 1

On the altitudes of quadrilaterals B. MICALE and M. PENNISI 15

An EOQ model with two-parameter Weibull distribution deterioration and price-dependent demand S. MUKHOPADHYAY and R. N. MUKHERJEE 25

The Cauchy–Schwarz inequality and the induced metrics on real vector spaces mainly on the real line W. RAMASINGHE 35

The values of a class of series involving generalized Fibonacci and Lucas numbers F.-Z. ZHAO and T. WANG 43

Diagnostic assessment of preparedness of level one sports science students for biomechanics modules S. J. DIXON 49

Deterministic and stochastic analysis of a prey-dependent predator–prey system A. MAITI and G. P. SAMANTA 65

Classroom Notes

Blending two major techniques in order to compute π M. F. GUASTI 85

Some exploration of the game SET® D. W. WU and N. K. UKEN 93

The Euler–Maclaurin formula and extensions – an elementary approach W. B. GEARHART and M. QIAN 96

Solving the inverse-square problem with complex variables N. GAUTHIER 103

A comparison of best fit lines for data with outliers P. GLAISTER 110

From chains for mean value inequalities to Mitrinovic's problem II L. ZHU 118

Direct sum decomposition of groups A. B. THAHEEM 126

Issue No. 2–3, MARCH

Special Issue

New Trends and Developments in Tertiary Mathematics Education: ICME-10 Perspectives

Edited by Rina Zazkis and Derek Holton

Foreword R. Zazkis and D. Holton 129

New developments and trends in tertiary mathematics education: Or, more of the same? A. Selden 131

Transition from secondary to tertiary mathematics: McMaster University experience A. Kajander and M. Lovric 149

The gap between secondary school and university mathematics H. S. Luk 161

Curriculum design and tertiary education M. Hockman 175

Engaging secondary school and university teachers in modelling: some experiences in South American countries V. E. Martinez-Luaces 193

Representing numbers: prime and irrational R. Zazkis 207

Mathematical discovery and *affect*: the *effect* of AHA! experiences on undergraduate mathematics students P. G. Liljedahl 219

Qualities of professional dialogue: connecting graduate research on teaching and the undergraduate teachers' program R. Leikin 237

The genetic approach to the teaching of algebra at universities I. S. Safuanov 257

Reference framework for describing and assessing students' understanding in first year calculus L. Kannemeyer 271

The computer as an aid in the development of geometrical proficiency: a differential approach I. Gurevich, D. Gorev and M. Barabash 289

Tertiary mathematics education for 2024 D. Holton 305

Issue No. 4, May

Data analysis in physics examination P. A. Forster 317

K–S test for goodness of fit and waiting times for fatal plane accidents P. W. Gwanyama 333

Digital maps, matrices and computer algebra D. G. Knight 345

Incremental net effects in multiple regression S. Lipovetsky and M. Conklin 361

A new class of pandiagonal squares P. D. Loly and M. J. Steeds 375

Theon's ladder for any root T. J. Osler, M. Wright and M. Orchard 389

Evaluation of 11th grade students' cognitive behaviour on some subjects of analysis according to gender N. Orhun 399

Classroom Notes

A simple proof e^2 is irrational W. Ramasinghe 407

Parametric integrals and Catalan numbers T. Dana-Picard 410

How to 'check the result'? Discourse revisited S. Abramovich 414

The rolling can investigation: towards an explanation G. Ireson and J. Twidle 423

How not to formulate multiple choice problems B. Abramovitz, M. Berezina and A. Berman 428

Why $\sin 80x$ looks like $\sin x$ on some graphing calculators J. Zeng and T. J. Osler 437

Letter to the Editor

Proofs of the vector triple product law M. A. B. Deakin 443

Issue No. 5, July

Widening participation in higher education: student quantitative skills and independent learning as impediments to progression M. Pokorny and H. Pokorny 445

Determinants and polynomial root structure L. G. de Pillis 469

Sketching the general quadratic equation using dynamic geometry software G. H. Stols 483

SLAC: A tool for addressing chaos in the ecology classroom A. J. Hamilton 489

Conceptual mathematics: An application to education D. Gavalas 497

The kappa statistic as a function of sensitivity and specificity M. Feuerman and A. R. Miller 517

Undergraduate mathematics achievement in the emerging ethnic engineers programme J. Moore 529

Classroom Notes

A new Newton-like iterative method for roots of analytic functions O. Otolorin 539

Latin and magic squares E. Emanouilidis 546

Characterizing continous functions in terms of separated sets M. Lynch 549

A new proof of the formula for the Bernoulli numbers Q.-M. Luo 551

An operator method for evaluating Laplace transforms B. G. Lanoue and O. Yürekli 553

Trigonometric integrals via partial fractions H. Chen and M. Fulford 559

Skewing $(n+1)$ tensor indices where the index range is n R. L. Agacy 565

Commutative semigroups and a generalization of the concept of mean C. Biasi and E. M. Zuffi 566

Issue No. 6, SEPTEMBER

Collaborative statistical investigations in diverse settings J. M. WATSON and H. L. CHICK 573

On the decimal numbers base n K.-K. POON, K.-W. YEUNG and W.-C. SHIU 601

Nonlinear learning of linear algebra: active learning through journal writing M. HAMDAN 607

Duality of polyhedra P. GAILIUNAS and J. SHARP 617

Maple explorations, perfect numbers, and Mersenne primes B. GHUSAYNI 643

Mathematical aspects of educating architecture designers: a college study I. M. VERNER and S. MAOR 655

Classroom Notes

On the magic square and inverse S. M. ELZAIDI 673

A random walk on a circular path W.-K. CHING and M. S. LEE 680

Symmetric swallows M. MCCARTNEY 684

Subharmonic solutions of order one-third T. H. FAY 687

A note on Laplace's expansion theorem M. JANJIĆ 696

Issue No. 7, OCTOBER

Special Issue

The Fifth Southern Hemisphere Conference on Undergraduate Mathematics and Statistics Teaching and Learning, Fraser Island, Australia, 22–26 November, 2005

Edited by Michael Bulmer

Foreword M. BULMER 699

Undergraduate students' performance and confidence in procedural and conceptual mathematics J. ENGELBRECHT, A. HARDING and M. POTGIETER 701

Analysis of student beliefs in a tertiary preparatory mathematics course C. CARMICHAEL and J. A. TAYLOR 713

EAL undergraduates learning mathematics B. BARTON, R. CHAN, C. KING, P. NEVILLE-BARTON and J. SNEDDON 721

Effective tutorial programmes in tertiary mathematics G. OATES, J. PATERSON, I. REILLY and M. STATHAM 731

Towards student instrumentation of computer-based algebra systems in university courses S. STEWART, M. O. J. THOMAS and J. HANNAH 741

An innovative learning model for computation in first year mathematics E. J. Tonkes, B. I. Loch and A. W. Stace 751

Investigation of interactive online visual tools for the learning of mathematics K. L. Jacobs 761

Technology mediated post-compulsory mathematics: An activity theory approach G. E. FitzSimons 769

Technology for nurture in large undergraduate statistics classes M. Bulmer and M. Rodd 779

Something strange and useless: service students' conceptions of statistics, learning statistics and using statistics in their future profession P. Petocz and A. Reid 789

From a logical point of view: an illuminating perspective in teaching statistical inference E. R. Sowey 801

Issue No. 8, December

Going beyond the basics: creating and inspiring problem solvers A. J. Heidenberg and J. A. Wasko 813

Gender justice, human rights and measurement in the mathematics classroom R. Vithal 827

Electrostatics of a point charge between intersecting planes: exact solutions and method of images W. N. Mei and A. Holloway 843

Capturing the S in segregation: a simple model of flowing granular mixtures in rotating drums A. Tordesillas and D. Arber 861

On the structure of the fixed charge transportation problem K. Kowalski 879

In search of more triangle centres. A source of classroom projects in Euclidean geometry S. Abu-Saymeh and M. Hajja 889

Classroom Notes

Real-life application of a simple continuum traffic flow model K. C. Ang and K. S. Neo 913

Interrogating functions I. N. Towers 922

An integral for the scalar propagator E. Capelas de Oliveira and A. O. Chiacchio 931

On the periods of a periodic function D. E. Dobbs 937

Why can we not make a perfect map? J. Benítez 944

Exploring the sums of powers of consecutive q-integers T. Kim, C. S. Ryoo, L. C. Jang and S. H. Rim 947